

With regard to claim 3, the examiner has objected to “such as” and to “the visual appearance of non-lamination effects”. Claim 3 has been amended to overcome this objection by replacing the words “non-lamination effects such as blistering” with “visual appearance of unlaminated patches” which has basis in the specification on page 3 lines 22 to 27, on page 5, lines 31 and 32 and on page 6 line 28.

In claim 4, the examiner has objected to there being no positive antecedent basis for “*the pitch.*” This objection has been dealt with by amending claim 4 to refer to the emboss points of the emboss pattern on the nonwoven spunbonded polymer fabric and the lamination points of the lamination pattern on the single lamination pattern calender roll each having a respective pitch therebetween to provide a positive antecedent for the pitch.

In claim 5, the examiner has objected to the terms “variable pitch” and a “fixed pitch” being unclear. Claim 5 has been amended by relating the “variable” pitch term of the emboss pattern to the lamination pattern of the single lamination pattern calender roll, by deleting the term “fixed,” and by stating that the pitch of the emboss pattern is varied prior to lamination.

With regard to claims 6, 7 and 8, the examiner has objected to “the axes of alignment” not having a positive antecedent. Positive antecedent basis in relation to “a single lamination pattern calender roll” has been provided in new independent claim 54 that replaces claim 1 and to which claim 6 has been made directly dependent; claims 7 and 8 being directly dependent on claim 6. Reference to the single lamination pattern calender roll having a rotational axis, and the emboss points of the emboss pattern of the nonwoven spunbonded polymer fabric and the lamination points of the lamination pattern each having respective axes of alignment extending at a respective angle to the rotational axis of the calender roll has been made in amended claim 6 in order to overcome the objections.

The examiner has objected to claims 10, 12 and 14 as being indefinite because it is unclear what is meant by having a variable emboss pattern bond area and a fixed lamination pattern contact area. The examiner has indicated that it is also unclear what is intended by having a variable

emboss point shape/size and a fixed emboss point shape/size. Accordingly, claims 10, 12 and 14 have been amended, respectively, to refer to the percentage bond area/shape/size of each emboss point of the emboss pattern of the nonwoven spunbonded polymer fabric being varied with respect to the percentage contact area/shape/size of each lamination point of the lamination pattern on the single lamination pattern calender roll prior to lamination.

Claims 9, 11, 13, 15-19, 21-23 and 31, although not rejected under 35 U.S.C. 112, second paragraph, have been amended for consistency with new claim 54.

In claims 30 and 32, the objectionable term “such as” has been removed from these claims and acceptable terminology used.

The examiner has objected to claim 34 as it is unclear what is meant by “*non-plastics fabric*” and “*such as.*” These expressions have been cancelled with “*such as*” being replaced by acceptable wording.

With regard to claims 35-38, the examiner has rejected claim 35 because it is unclear what is intended by “the first material can be reversed to present an emboss pattern having different pattern characteristics to that presented when the first material is not reversed” and “can be”. Claims 36 to 38 have been indicated as being indefinite because they are dependent on claim 35. Claim 35 has been amended in order to overcome the objections by making claim 35 dependent on new claim 54, combining claim 36 therewith and incorporating subject matter from the specification on page 13, lines 27 to 33 to page 14, lines 1 to 9. Consequential amendments have been made to claims 37 and 38.

New claims 54 and 55 recite the kinds of first and second materials used in the present invention and with which the problems appreciated by the applicant with laminating point bonded (embossed) nonwoven spunbond polymer fabrics to non-embossed polymer materials. These problems are set out in the specification on page 3, lines 12 to 33 to page 4 lines 1 to 25, page 5, lines 31 and 32 to page 6, lines 1 to 32 and page 7 lines 1 to 26.

New independent claim 56 includes the subject matter of new claim 54 and amended claims 4, 6, 9, 11 and 13 and new claims 57-65 that are dependent directly or indirectly from claim 56 correspond to amended claims 5, 7, 8, 10, 12, 14, 15, 35, 37 and 38.

New claim 66 is an independent product claim directed to a laminate made in a lamination process as well as new product claims 67 to 83 which are dependent directly or indirectly from claim 66. Claims 66 to 83 respectively correspond to, and contain all the limitations of, method claims 54 (new) and claims 2 to 15 (amended) and claims 35, 37 and 38 (amended) that are dependent directly or indirectly from new claim 54.

The examiner has rejected claims 1, 3, 9, 11, 13 and 45 as being anticipated by WO/20687 to Perini (figures 1, 4a and 5), WO/20688 to Perini (figures 1, 4a and 5) or US 6,306,482 to Ruppel et al (6,306,482 using PCT publication date of 10 February 1997; figures 1 and 2). The examiner considers that although not specifically disclosed by the above references, the processes taught by any one would have inherently avoided the appearance of non-lamination effects because of the similarity of production between the above references and recited claims.

WO/20687 to Perini (figures 1, 4a and 5) and WO/20688 to Perini (figures 1, 4a and 5) relates to an embossing machine of the tip-to-tip type for adhesively laminating two separately embossed layers to form a multiple layer of paper in strip form wound into a roll, a serviette, or paper tissue. In such machines, the protuberances of two cooperating metal embossing cylinders impact to effect the adhesive lamination of the two paper layers. The object of the Perini inventions (page 3, lines 37 and 38 to page 4 line 4) is to produce an embossing and laminating machine that requires no phase matching between the embossing cylinders and which at the same time eliminates the disadvantages of having pressure concentrating on, and consequently crushing, the protuberances on the cylinders.

The machine comprises two embossing cylinders 3 and 5 having embossing protuberances P3 and P5 and disposed with parallel rotational axes. The embossing cylinders 3 and 5 interact with respective pressure rollers 7 and 9 between which embossing cylinder 3, 5 and pressure cylinder 7, 9 two layers of paper material N3 and N5 are fed so that they are embossed separately

forming protuberances P3' and P5' in a pattern formed by the protuberances P3 and P5 of respective emboss cylinders 3 and 5 and remain engaged with the respective cylinders and after an adhesive has been applied by unit 14 (Fig. 1) to the protuberances of the layer N3 are joined in the nip between the two embossing cylinders 3 and 5 where the protuberances of one embossing cylinder move at a distance which is less than the combined thickness of the two layers N3 and N5 from the protuberances of the other embossing cylinder to provide the necessary pressure for gluing the two layers to obtain a double strip of material N2. Page 7, lines 1 to 19.

The two embossing cylinders 3 and 5 are made with their protuberances P3 and P5 distributed in such a way that in the area where the layers are joined, only some of the protuberances P3 coincide with corresponding protuberances P5 while in other areas there is no coincidence. This is achieved as shown in Figures 2 and 3 by making the embossing cylinders 3, 5 with the same pattern (of protuberances) embossed on both cylinders, but disposed at inclinations such that there is no superimposition or correspondence, between all the protuberances of one cylinder and all the protuberances of the other cylinder, but there is superimposition or coincidence in certain areas. As will be seen from Figures 2 and 3 the axes of the protuberances P3 and P5 of the two lamination patterns of the emboss cylinders 3 and 5 are inclined by different angles β_1 and β_3 to the direction A3 of the rotational axis of the respective cylinders 3, 5 and the resultant emboss pattern produces an interference pattern that is shown in Figure 4.

For the purpose of ensuring that the cylinders are out of phase (no phase matching), a transmission system is provided which permits slippage between the cylinders and does not keep the cylinders in phase which is based on the recognition of the fact that if the protuberances on the cylinders correspond to each other in certain areas only, and not over the whole line of contact in the lamination nip between the two embossing cylinders, it is no longer necessary to keep the cylinders in phase with each other. This ensures a much longer service life of the embossing cylinders, not only because the crushing due to the pressure is less rapid since it is distributed over all the cylinders, but also because a greater degree of crushing can be tolerated. In systems in which the protuberances are deformed in certain areas, the crushing of the working protuberances soon becomes such that correct lamination of the layers is no longer possible

without the reciprocal interference of the non-deformed protuberances, but this is not the case with the embossing machine according to the Perini cited references in which the crushing is uniform over the whole cylinder and can therefore be easily compensated for by reducing the gap between the embossing cylinders. The absence of phase matching and the use of the transmission which causes slippage between the two cylinders makes it possible to dispense with the whole laborious operation of adjusting the machine, with considerable savings in time and money. It also avoids all the problems due to localised crushing of the protuberances.

On page 10, lines 19 to 35 and page 11, lines 6 to 10 of WO 97/20687, according to the Perini invention, the cylinders 3 and 5 are rotated by means of a transmission such as a flat belt (Fig 1) or gears (Fig. 7) that permit(s) slippage between the two cylinders and therefore permits the cylinders to move out of phase. This kind of transmission is not capable of maintaining the phase match between the two pulleys 53 and 55 of the belt transmission and therefore slight slippages or movements out of phase are inevitable between the two cylinders but has the advantage of reducing the construction and maintenance costs, and lubrication problems typical of gear systems. Whereas this phenomenon would be totally unacceptable in the embossing method using conventional tip-to-tip joining, according to the Perini invention, it is precisely this characteristic of the transmission that is used to obtain the advantages and results described, namely the distribution of crushing, increase in the service life of the cylinders, reduction in adjustment and maintenance operations, the total elimination of the initial adjustment of the cylinders and a reduction in transmission noise.

The Perini references relate to the different art of paper embossing, different materials (paper as opposed to polymers), different problems to be overcome, namely machinery protuberance crushing in tip-to-tip protuberance metal embossing cylinders in which out of phase engagement is produced by cylinder transmission slippage and different angles of alignment of the axes of the cylinder protuberances with the rotational axes of the cylinders, as opposed to the avoidance of non-lamination effects in laminated polymer products by the control of mis-registration of the emboss pattern formed by heat and pressure on a nonwoven spunbonded material with a non-laminated polymer material using a single lamination pattern calender roll.

Ruppel et al (claims 1, 3, 9, 11 and 45) relates to absorbent paper products such as toilet paper, handkerchiefs, napkins and paper towels made of lightweight creped absorbent paper such as cellulose wadding or tissue paper that are stretchable, enabling them to be embossed to impart bulk, improve liquid absorption, touch and softness and which comprise at least two plies of embossed creped absorbant paper sheet.

The embossing apparatus disclosed in Ruppel is for making an absorbent structure having two plies P1 and P2 that are engaged between two engraved metal cylinders CG1 and CG2 fitted with respective bosses/salient parts R1 and R2, driven in synchronised rotation and mutually nesting with a play J between the tops of the salient parts of one metal cylinder CG1 and the opposite trough surface of the engraving of the other cylinder CG2. Prior to its engagement between the two engraved cylinders, each ply P1, P2 is shaped to follow the surface of its associated engraved cylinder by forcing the ply against the cylinder by means of an associated compression cylinder CP1 and CP2 fitted with flexible cladding and an adhesive A is applied by a device 14 to the salient zones of the ply P2 and/or ply P1 after it has been embossed by compression cylinder CP2 and/or CP1 but before the two plies are engaged in the mutual nesting zone between the engraved cylinders CG1 and CG2.

The overlap C, also called cylinder engagement, is such that the play J remaining between the engraved cylinders CG1 and CG2 allows inserting of the plies P1 and P2 between the engraved cylinders. The play J measured between the between the tops of the salient parts such as R1 of one of the metal cylinders CG1 and the opposite surface of the trough, for example F2 of the engraving of the other cylinder, CC2, is larger than or equal to the sum of the thicknesses E1 and E2 of the plies P1 and P2 when the latter are engaged in the mutual nesting zone of the cylinders CG1 and CG2. Thanks to the feature of the Ruppel et al invention whereby the play J is larger than the sum of the thicknesses E1 and E2 of the previously embossed plies P1 and P2, the plies will not be compressed when being simultaneously engaged between the engraved cylinders CG1 and CG2 but are mutually nesting ready to be adhesively combined using a laminator roll CM. The laminator roll CM, like the compressing cylinders CP1 and CP2, is a cylinder having a

flexible cladding and cooperates with the engraved metal cylinder CG2 to press the two previously embossed, adhesive coated and mutually nesting plies P1 and P2 against the cylinder CG2.

The Ruppel invention overcomes the problems of existing embossing cylinders with very tight engraving tolerances raising complexities on an industrial scale because the magnitude of the play is selected to be no more than the thickness of the web being embossed in order to ensure calendering the web near the tops of the protrusions implemented when combining plies in the zone, of fluttering of the ply detached off its metal embossing cylinder in the zone upstream of the laminator roll and associated metal engraving cylinder when the ply passes through the zone in the direction of the laminator roll under very high embossing pressures which results in forming a loop entailing an offset between two plies, and hence manufacturing defects because of the lack of registry of the two plies when they are bonded together by the laminator roll.

The inventions now claimed in new independent claim 54 and claims 3, 9, 11 and 13 now dependent therefrom, and new independent claims 56 and 66 relate to a different art, use different materials, solve different problems and claim different features than those of the Perini and Ruppel et al cited references, and are thereby clearly patentable over the cited references.

Claims 1, 3, 9, 11, 13, 15, 17-19, 21-23, 25-27, 29-34, and 45 are rejected under 35 U.S.C. 102(b) as being anticipated by US 5,763,041 to Leak et al and claims 20, 24 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leak et al as applied to claim 1, 17 or 21.

Leak et al discloses a laminate suitable for use as the loop component of a hook-and-loop fastener, primarily for use in a disposable absorbent diaper to hold the diaper on a baby by engaging the loop component with the hook component. The loop component laminate is illustrated in Figure 1 and the bonding patterns in Figures 2 and 3 and 7 to 9 and the diaper in Figure 6.

More particularly and referring to column 2, lines 56 to 67 to column 3, lines 1 to 23, and as illustrated in Figure 1, Leak et al discloses a loop component laminate 10 of a hook-and-loop

closure system having a first substantially non-elastic extensible layer 12, e.g. a film, and a second layer 14, e.g. a nonwoven spunbond fabric, thermally bonded together at locations 16. The film layer 12 is capable of being stretched by at least 25 percent, preferably at least 100 percent, and upon release of the force causing the stretching, retracts from about 15 to about 30 percent so that when the laminate is allowed to relax, the spunbond fabric layer 14 bulks up to form a small, bulky "pillow" between the lamination points, as can readily be seen in Figure 1. The spunbond fabric layer 14 has already been thermally point bonded prior to the lamination process with a uniform dot pattern (bonding pattern) covering about 10.6% of the surface of the fabric. The dot pattern has a size of about 0.68mm^2 and is formed by passing the spunbond fabric through embossing rolls at a temperature of about 315°F (see column 10, lines 56 to 62).

The film layer 12 and the spunbond fabric layer 14 are then laminated together by passing the spunbond fabric and film layers through embossing rolls which have a temperature of 232°F (see column 11, lines 10 to 13). Lines 30 to 35 of column 11 state that "a variety of laminates were formed ... using pattern rolls which differed in pin size and density *to provide different levels of bond area*" (emphasis added). Specifically, Leak et al teaches that there is a relationship between the lamination pattern and the shear strength of the hook-and-loop closure system. There is no mention of any interactions between the lamination points of the point lamination pattern of a single lamination pattern calender roll and the emboss points of an emboss bonding pattern of the nonwoven spunbond fabric layer, let alone any control of such interactions.

The present invention, as now defined in new claim 54, is directed to laminating a nonwoven spunbonded polymer fabric having a plurality of emboss points that are formed under heat and pressure and that form an emboss pattern to a non-embossed polymer material which are brought together and laminated to one another by a lamination process using a single lamination pattern calender roll of which the lamination pattern has a plurality of lamination points and in which, in contrast to Leak et al, one or more characteristics of the two patterns is selected and differentiated to control, during lamination, the amount of point mis-registration between the emboss pattern on the nonwoven spunbonded polymer fabric with the lamination pattern on the

single point lamination pattern calender roll and thereby the occurrence of unlaminated patches in the resultant laminate.

It is submitted that control of the amount of point mis-registration between the emboss pattern on the nonwoven spunbonded polymer fabric with the lamination pattern on the calender roll and thereby the occurrence of unlaminated patches in the resultant laminate has not been taught, suggested, contemplated or even foreshadowed in Leak et al as now claimed in new claim 54. Indeed, there is no subject matter derivable directly and unambiguously from Leak et al that suggests that mis-registration of the point bond patterns is or should be controlled, nor that the two patterns are selected and differentiated for this purpose. With the hook component construction of Leak et al relying on stretching of the base film layer 12 to cause the necessary bulking of the fabric of the spunbond layer 14 in relation to the base film layer 12, as can be seen in Figure 1, it would not matter whether or not there were any unlaminated patches, notwithstanding that such unlaminated patches would not be apparent anyway.

Furthermore, the fact that many different types of pin patterns were investigated (see Table 2) shows that the control of mis-registration of the point bond patterns has not been appreciated in Leak et al. In fact, not surprisingly, there is not even an appreciation of the problem which the present invention is seeking to overcome. There is not any mention of the problem of unlaminated patches, such as visible blistering, unattractiveness, unevenness or wrinkling (page 3, lines 22 to 27, page 6, lines 12, 28, 31 and 32 of Applicant's specification), nor even that there is any interference between the two different bond patterns.

Further evidence that there is no appreciation in Leak et al of the problem which the Applicants' invention seeks to overcome is given by consideration of the specific bonding patterns used as examples. Figure 2 shows a bonding pattern suitable for use in bonding the nonwoven fabric (i.e. pre-bonding the fabric), while Figure 3 shows a bonding pattern suitable for use as the lamination pattern. The two bonding patterns are essentially the same; both are square bonding patterns aligned along the same axis. As drawn, Figure 3 has a pattern that is more spaced out (fewer points per unit area) than Figure 2. However, the Leak et al specification and claims identify the nonwoven bond pattern (Figure 2) to be between 3% and 35% bond area with between 5 and 20 points/cm². The lamination bond pattern (Figure 3) is quoted as being between

5% and 20% bond area with greater than 2 points/cm². Therefore, the essential teaching of Leak et al is that the characteristics of the two patterns can be **identical**, which is precisely what Applicants' invention as now defined in new claim 54 seeks to avoid.

Therefore, it is submitted that control of the mis-registration between the point bonding patterns as now set in the context of new claim 54 is neither anticipated nor obvious. One has only to compare the laminated product of Figure 1 of Leak et al with that of Applicant's Figure 11 to appreciate what vastly different inventions Leak et al's and Applicant's as now defined in new claim 54 are.


Now that the objections of indefiniteness to the subordinate claims 2-8, 10, 12, 14, 30, 34, 35, 37 and 38 have been addressed, it is submitted that these claims, all of which are dependent from novel and patentable claim 54, also define novel and patentable subject matter over Leak et al. This is further emphasised by the amended dependent claims 2-14, 35, 37 and 38, which set forth now with greater clarity each of the more specific alternative ways in which one or more of the two patterns is selected and differentiated in order to control, during lamination, the amount of point mis-registration between the emboss pattern on the nonwoven spunbonded polymer fabric with the lamination pattern on the single lamination pattern calender roll and thereby the occurrence of unlaminated patches in the resultant laminate. Leak et al is also completely silent on each and every one of these more specific ways of controlling the amount of point mis-registration.

It is further submitted that the same also applies to new independent claim 56 which includes the subject matter of new method claim 54 and amended claims 4, 6, 9, 11 and 13, the combination of which features is not disclosed, taught, suggested, contemplated or foreshadowed by Leak et al as well as new method claims 57 to 64 that are dependent from claim 56 and new product claims 66 to 83.

Accordingly, it is submitted that claims 2-19, 21-23, 30-35, and 37-38, as amended, and new claims 54-80 are in a condition for allowance.

Respectfully submitted,

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APPENDIX

In the Specification

Page 6, lines 1-6:

points 26, already present in the spunbonded fabric, were in register with each other. In the areas (O) where the lamination points of the calender roll did not coincide with the emboss points 26 of the fabric (out of register), the materials were well laminated. It is to be noted that only for the purposes of illustration, the size of the emboss points 26 has been reduced in Figure 5A for the purposes [if] of differentiation from the lamination points: this makes no material effect upon the results.

Page 13, lines 18-26:

Two component films (two ply laminates) can be quite sensitive to the percentage of in-register areas. Using low-weight spunbonded fabrics this problem can be avoided but this leads to another problem in the damage of the low-weight spunbonded fabrics. One solution is to use a very thin fabric layer as a third layer in the laminate and to protect the thin third layer with the second layer. Three layer laminate is very strong and protects the second layer which is now sandwiched between the first and third layers. Accordingly, the method of the present point lamination invention may further comprise providing a further layer between first and second materials. The further layer is preferably a microfibre layer[, a non-plastics fabric] or a continuous thin film.

Page 26, lines 22-27:

The effect of the lamination interaction between the two different patterns 41, 56 is further illustrated in Figure 11 which is a photomicrograph of the surface of the resultant laminate 60 taken at an angle to reveal three-dimensional aspects of the interference pattern 82. The lamination points 55 are visible as square-shaped depressions labelled [A] B while the bonding pattern 41 of the fabric 40 is visible by the reflected light of the circular-shaped bonding points 42 which are labelled [B] A on the surface of the fabric 40.

In the Claims

2. (amended) A method according to claim [1] 54, wherein the selection and degree of differentiation between the one or more characteristics is arranged [to maximise the amount of point registration between the two patterns] such that areas where emboss points of the emboss pattern on the nonwoven spunbonded polymer fabric are substantially in register with lamination points of the lamination pattern on the single lamination pattern calender roll are smaller than 25 mm² to avoid the visual appearance of unlaminated patches including blistering occurring in the resultant laminate.
3. (amended) A method according to claim [1] 54, wherein the selection and degree of differentiation between one or more characteristics is arranged to control the size of the areas in the resultant laminate containing groups of adjacent points in each of the emboss pattern on the nonwoven spunbonded polymer fabric and point lamination pattern on the single lamination pattern calender roll and which are in registration, in order to avoid the visual appearance of [non-lamination effects such as blistering] unlaminated patches occurring in the resultant laminate.
4. (amended) A method according to claim [1] 54, wherein the emboss points of the emboss pattern on the nonwoven spunbonded polymer fabric and the lamination points of the lamination pattern on the single lamination pattern calender roll each have a respective pitch therebetween and wherein the one or more selected characteristics include the pitch between the emboss points of the emboss pattern on the nonwoven spunbonded polymer fabric or lamination points of the point lamination pattern on the single lamination pattern calender roll .
5. (amended) A method according to claim 4, wherein the pitch of the emboss pattern [pitch] on the nonwoven spunbonded polymer fabric is [variable and] varied with respect to the pitch of the point lamination pattern [pitch is fixed] on the single lamination pattern calender roll prior to lamination.

6. (amended) A method according to claim [1] 54, wherein the single lamination pattern calender roll has a rotational axis, wherein the emboss points of the emboss pattern of the nonwoven spunbonded polymer fabric and the lamination points of the lamination pattern each have respective axes of alignment extending at a respective angle to the rotational axis of the single lamination pattern calender roll and wherein the one or more selected characteristics include the axes of alignment of the emboss points of the emboss pattern and of the lamination points of the lamination pattern of the single lamination pattern calender roll.

7. (amended) A method according to claim 6, wherein the axes of alignment of the emboss points of the emboss pattern of the nonwoven spunbonded polymer fabric and of the lamination points of the lamination pattern of the single lamination pattern calender roll are orthogonal to each other.

8. (amended) A method according to claim 6, wherein the axes of alignment of the emboss points of the emboss pattern of the nonwoven spunbonded polymer fabric are varied [and] with respect to the axes of the lamination points [are fixed] of the lamination pattern of the single lamination pattern calender roll prior to lamination.

9. (amended) A method according to claim [1] 54, wherein the one or more selected characteristics include one of the percentage bond area of the emboss pattern of the nonwoven spunbonded polymer fabric [or] and the percentage contact area of the point lamination pattern of the single lamination pattern calender roll.

10. (amended) A method according to claim 9, wherein the percentage bond area of the emboss pattern of the nonwoven spunbonded polymer fabric is [variable and] varied with respect to the percentage contact area of the point lamination pattern of the single lamination pattern calender roll [is fixed] prior to lamination.

11. (amended) A method according to claim [1] 54, wherein the one or more selected characteristics include one of the shape of each emboss point of the emboss pattern of the nonwoven spunbonded polymer fabric [or] and the shape of each lamination point of the point lamination pattern of the single lamination pattern calender roll.

12. (amended) A method according to claim 11, wherein the shape of each emboss point of the emboss pattern of the nonwoven spunbonded polymer fabric is [variable and] varied with respect to the shape of each lamination point [is fixed] of the lamination pattern of the single lamination pattern calender roll prior to lamination.

13. (amended) A method according to claim [1] 54, wherein the one or more selected characteristics include one of the size of each emboss point of the emboss pattern of the nonwoven spunbonded polymer fabric [or] and of the size of each lamination point of the point lamination pattern of the single lamination pattern calender roll.

14. (amended) A method according to claim [11] 13, wherein the size of each emboss point of the emboss pattern of the nonwoven spunbonded polymer fabric is [variable and] varied with respect to the size of each lamination point [is fixed] of the lamination pattern on the single lamination pattern calender roll prior to lamination.

15. (amended) A method according to claim [1] 2, wherein the [weight of the first material is] nonwoven spunbonded polymer fabric has a weight of greater than or equal to 50 g/m^2 .

16. (amended) A method according to claim [1] 54, wherein the [weight of the second material is] non-embossed polymer material has a weight of less than 50 g/m^2 .

17. (amended) A method according to claim [1] 54, further comprising providing a thermoplastic adhesive layer between the [first and second materials] nonwoven spunbonded polymer fabric and non-embossed polymer material during [the] lamination [process].

18. (amended) A method according to claim 17, wherein the adhesive layer is provided as a coating on one of said [first and second materials] nonwoven spunbonded polymer fabric and non-embossed polymer material.

19. (amended) A method according to claim 18, wherein the coating is substantially continuous but provides discrete adhesive bonding points between the [first and second materials] nonwoven spunbonded polymer fabric and non-embossed polymer material at the lamination points during [the point] lamination [process].

21. (amended) A method according to claim [17] 20, wherein the [first material] nonwoven spunbonded polymer fabric [comprises] is a thermoplastic polymer and wherein the [lamination is implemented by an embossed] single lamination pattern calender roll is a thermobonding calender.

22. (amended) A method according to claim 21, [wherein the lamination comprises] including passing the thermoplastic adhesive layer and the [polymer layer] nonwoven spunbonded thermoplastic polymer fabric through the thermobonding calender such that they are caused to melt together to form an integrated bond.

23. (amended) A method according to claim 22, wherein the [second material comprises] non-embossed polymer material is a [thermoplastics material] thermoplastic polymer and is also caused to melt to form part of the integrated bond.

30. (amended) A method according to claim [29] 54, wherein the [first material] nonwoven spunbonded polymer fabric comprises a [thermobonding] polymer selected from the group consisting of [such as] polypropylene, polyethylene, polyester [or] and polyamide.

31. (amended) A method according to claim [1] 54, wherein the [second] non-embossed polymer material comprises a thin film.

32. (amended) A method according to claim 31, wherein the [second material] thin film comprises a [thermobonding] polymer selected from the group consisting of [such as] polypropylene, polyethylene, polyester [or] and polyamide.

33.(amended) A method according to claim [1] 54, further comprising providing a further layer between the [first and second materials] nonwoven spunbonded polymer fabric and the non-embossed polymer material.

34. (amended) A method according to claim 33, wherein the further layer is one of a microfibre layer [a non-plastics fabric, or] and a continuous thin film.

35. (amended) A method according to claim [1] 54, wherein [the lamination is effected by use of a thermobonding calendar, the first material] the single lamination pattern calender roll has a rotational axis wherein the nonwoven spunbonded polymer fabric has oppositely facing surfaces of which a first oppositely facing surface is presented to the single lamination pattern calender roll and has an emboss pattern which is non-symmetrical about a line transverse to [an] the rotational axis [of rotation] of the [calender] single lamination calender roll, and wherein the [first material can be reversed in orientation] nonwoven spunbonded polymer fabric is turned over prior to lamination to present to the single lamination calender roll a second alternative oppositely facing surface with an emboss pattern having different pattern characteristics to that presented when the [first material] nonwoven spunbonded polymer fabric is not [reversed] turned over.

37 (amended) A method according to claim 35 wherein the [reversed] turned over embossed pattern of the nonwoven spunbonded polymer fabric is sufficiently different to the [non-reversed] non-turned over embossed pattern to provide under the same lamination [process] conditions a different pressure distribution across the laminate.

38. (amended) A method according to claim 37, wherein the difference in pressure distributions leads to perforation of the laminate when the [first material] nonwoven spunbonded polymer fabric is [reversed] turned over and non-perforation when it is not [reversed in orientation] turned over.